

Please add the following abstract at the end of the specification, immediately following the claims:

ABSTRACT

A method for obtaining genetically modified plant seed includes contacting germinating plant seed with a wetting agent or surfactant and contacting the thus wetted plant seed with an *Agrobacterium* strain genetically to modify the plant seed. The invention also extends to a genetically modified plant seed.

A substitute page 17 containing the Abstract is submitted herewith for inclusion with the specification.

In the claims:

Please amend claims 1-20 as shown on the attached claim pages.

Please cancel claims 21 and 22 without prejudice.

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REMARKS

Claims 1-22 are pending in this application. Claims 1-20 have been amended in the amendments submitted herewith, while claims 21 and 22 have been deleted. Although the applicant disagrees in many respects with the issues raised by the Examiner in the Office Action, in order to expedite this matter and to limit costs, the claims have been amended along the lines suggested by the Examiner.

The Examiner states that the effective filing date for this case is October 14, 1999, which is the PCT filing date and that benefit of priority requires that the priority document be

submitted. Applicant respectfully disagrees that the effective filing date is October 14, 1999, although that is the PCT filing date. The PCT publication indicates a foreign priority claim for application ZA 98/9427 with a filing date of October 15, 1998, which should be the effective filing date of this application. As to submission of the priority document, it was timely filed, in accordance with Rule 17.2 PCT, with the International Bureau on November 17, 1999 in support of PCT/IB99/01676, as indicated on the attached copy of the Form PCT/IB/304, and thus the Examiner may not request the Applicant to provide the priority document. It should be readily available as part of the record from the International Bureau upon the Examiner's request.

Applicant has amended the application to indicated the status of the foreign priority document.

As required by the Examiner, Applicant has provided an abstract of the disclosure.

The Examiner has rejected claims 1-22 under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant has amended the claims in response to the Examiner's specific rejections.

Specifically, Applicant has amended claim 1 to include a "gene of interest" in response to the Examiner indicating that a gene was needed to transform the plant seed. Applicant has also deleted the "transformed" language to so that there is no alternative to "genetically modify" in the claim.

In all dependent claims, "A" has been changed to "The" as required.

In claims 5, 6 and 7, "are" has been changed to "is" and "they are" to "it is", as noted by the Examiner, as applicable to each of these claims.

Claims which recite "gene" have eliminated that term in favor of a "DNA of interest", as

suggested by the Examiner.

Claim 10 has been amended to delete "one of" and change "and" to "or".

Claim 14 had been amended to delete language to avoid improper use of Markush language, as noted by the Examiner.

In claim 15, the Family name of the plant seed has been capitalized as noted by the Examiner.

In claim 20, "cultivated" has been changed to "obtained" as required by the Examiner.

The Examiner rejected claims 21 and 22 under 35 U.S.C. § 112, first paragraph, as being unsupported in the specification. Claims 21 and 22 have been canceled.

The Examiner rejected claims 1-5, 7-9, 12-14 and 19-22 under 35 U.S.C. § 102(b) as being anticipated by Clough et al. 1998, Plant Journal, Vol 16, No. 6, pages 735-743. Applicant respectfully disagrees with the Examiner in that the Clough et al publication is obviated as a reference. Specifically, the Clough et al article was published in December 1998. However, as noted above, the PCT and US applications claim foreign priority from ZA 98/9427 dated October 15, 1998, which predates the Clough et al. publication. Applicant thus respectfully requests withdrawal of the rejection over the Clough et al publication. (Further, the December 1998 publication date of the article by Clough et al was not more than one year prior to the date the Examiner has cited as the effective filing date, namely, the October 14, 1999 filing of the international application, and thus a rejection under 35 U.S.C. § 102(b) is inappropriate even using that date.)

Claims 1 and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Bennett (U.S. Patent 5,658,773). The Applicant respectfully traverses this rejection. Bennett teaches transformation of plant cells by sterilizing seed in the presence of a wetting agent.

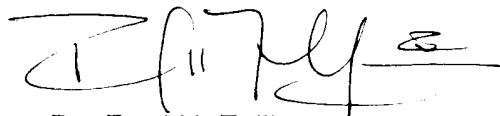
thereafter rinsing the seed in sterile water and only then contacting the seed with an *Agrobacterium* culture. It is thus very clear that Bennett does not teach contacting the seed, while in a state of being wet from the wetting agent, with the *Agrobacterium* strain. Instead, the wetting agent is first removed by Bennett before the seed is contacted with the *Agrobacterium* strain. In Bennett, the purpose of the wetting agent is to assist in the seed sterilization step, by improving the wetting of the seeds with the bleach. In the method of Applicant's invention, the wetting agent is used to improve contact between the *Agrobacterium* strain and the seed. Claim 1 has, however, been amended to more clearly distinguish Applicant's invention over Bennett. Applicant thus submits that claims 1 and 15 are not disclosed or suggested by Bennett (indeed Bennett teaches away from Applicant's method) and respectfully requests that the rejection over Bennett be withdrawn.

As described in the specification the invention is for a method of obtaining genetically modified plant seed, in which germinating plant seed is contacted with a wetting agent or surfactant, with the thus wetted seeds being contacted with an *Agrobacterium* strain genetically to modify the plant seed. The wetted plant seed is thus contacted with the *Agrobacterium* strain while the seed is still wet from the wetting agent. Typically, this is effected simultaneously, by contacting the plant seed with an admixture of the wetting agent and the *Agrobacterium* strain, as described in Example 1 of the specification. The claimed method provides an unexpectedly high transformation success rate of approximately 35 %, at least when applied to soybean seeds.

The applicant has submitted amendments and arguments that are believed to overcome all of the outstanding rejections. Therefore, allowance of this case is respectfully solicited.

Respectfully submitted this 3rd day of January, 2003.

SAND & SEBOLT

A handwritten signature in black ink, appearing to read "F. Zollinger", with a horizontal line extending to the right.

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Docket No. 1930-A-PCT-US

MARKED-UP VERSION OF CLAIMS TO SHOW CHANGES MADE

1 (Once amended) A method for obtaining [transformed or] genetically modified plant seed, the method including contacting germinating plant seed with a wetting agent or surfactant and contacting the thus wetted plant seed with an *Agrobacterium* strain [to transform or] having a gene comprising a DNA of interest thereby genetically to modify the plant seed.

2 (Once amended) [A] The method as claimed in claim 1, in which the wetting agent or surfactant is a non-oil based wetting agent or surfactant.

3 (Once amended) [A] The method as claimed in claim 1, in which the wetting agent or surfactant includes a polyether polymethyl siloxane copolymer.

4 (Once amended) [A] The method as claimed in claim 1, in which the *Agrobacterium* strain and the wetting agent or surfactant are in the form of an admixture, the wetting agent or surfactant and the *Agrobacterium* strain being present in the admixture in a mass ratio of the wetting agent or surfactant: *Agrobacterium* strain of between 1:99 and 1:10000.

5 (Once amended) [A] The method as claimed in claim 1, in which the germinating plant seed [are] is subjected to vacuum infiltration while [they are] it is being contacted with the wetting agent or surfactant and the *Agrobacterium* strain.

6. (Once amended) [A] The method as claimed in claim 5, in which the germinating plant seed [are] is subjected to vacuum infiltration for a period of between 5 minutes and 40 minutes[, at a pressure of between 150 Pa (a) and 750 Pa (a)].

7. (Once amended) [A] The method as claimed in claim 1, in which the germinating plant seed [are] is contacted with the wetting agent or surfactant and the *Agrobacterium* strain for a period of between 2 hours and 48 hours, at a temperature of between 15° C and 35° C.

8. (Once amended) [A] The method as claimed in claim 1, in which the *Agrobacterium* strain is *Agrobacterium tumefaciens*.

9. (Once amended) [A] The method as claimed in claim 1, in which the *Agrobacterium* strain includes [a foreign gene] said DNA of interest which includes appropriate regulatory sequences so as to be expressed in the cells of a plant which is cultivated from the [transformed or] genetically modified plant seed.

10. (Once amended) [A] The method as claimed in claim 9, in which the [foreign gene] DNA of interest confers at least [one of] disease resistance [and] or drought resistance to the plant which is [cultivated] obtained from the [transformed or] genetically modified plant seed.

11. (Once amended) [A] The method as claimed in claim 1, in which the *Agrobacterium* strain includes a plasmid comprising vector pBI121.

12. (Once amended) [A] The method as claimed in claim 9, in which the *Agrobacterium* strain includes a plasmid which includes both said [foreign gene] DNA of interest and a [selection agent resistance] gene comprising a selection agent resistance DNA, the selection agent resistance [gene] DNA also including appropriate regulatory sequences so as to be expressed in the cells of the plant which is [cultivated] obtained from the [transformed or] genetically modified plant seed.

13. (Once amended) [A] The method as claimed in claim 12, in which the selection agent resistance [gene] DNA codes for antibiotic resistance, thus imparting resistance to an antibiotic selection agent to the plant which is [cultivated] obtained from the [transformed or] genetically modified plant seed.

14. (Once amended) [A] The method as claimed in claim 13, in which the antibiotic selection agent is [selected from the group consisting of at least one of] kanamycin and/or rifampicin, and in which the selection agent resistance [gene] DNA is a GUS-intron [gene] DNA.

15. (Once amended) [A] The method as claimed in claim 1, in which the plant seed is from the family [/]Leguminosae.

16. (Once amended) [A] The method as claimed in claim 15, in which the plant seed is soybean seed.

17. (Once amended) [A] The method as claimed in claim 15, in which the plant seed is lupin seed.

18. (Once amended) [A] The method as claimed in claim 1, which includes germinating plant seed at a temperature of between 22 °C and 32 °C, for a period of between 2 days and 5 days, before simultaneously contacting the germinating plant seed with the wetting agent or surfactant and the *Agrobacterium* strain.

19. (Once amended) A [transformed or] genetically modified plant seed produced by the method as claimed in claim 1.

20. (Once amended) A [transformed or] genetically modified plant [cultivated] obtained from the plant seed as claimed in claim 19.

Please cancel claims 21 and 22 without prejudice or disclaimer.

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NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
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(PCT Administrative Instructions, Section 411)

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VAN DER WALT, Louis, Stephanus
Adams & Adams Pretoria Office
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AFRIQUE DU SUD

Date of mailing (day/month/year) 22 November 1999 (22.11.99)	
Applicant's or agent's file reference F14602 LVDW	IMPORTANT NOTIFICATION
International application No. PCT/IB99/01676	International filing date (day/month/year) 14 October 1999 (14.10.99)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 15 October 1998 (15.10.98)
Applicant PROTEIN RESEARCH TRUST et al	

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
3. An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
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<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
15 Octo 1998 (15.10.98)	98/9427	ZA	17 Nove 1999 (17.11.99)

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